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10/577,188	04/25/2006	Sakae Saito	65073(71004)	1209

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EXAMINER	
LOVELL, LEAH S	

ART UNIT	PAPER NUMBER
2885	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,188	SAITO ET AL.	
	Examiner	Art Unit	
	LEAH S. LOVELL	2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/4/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The preliminary amendment filed 25 April 2006 has been considered and entered.

Claim Objections

1. Claim 13 is objected to because of the following informalities: the claim is currently dependent on claim 1—which is cancelled. If the dependency of claim 13 is changed to *any* of the independent claims (11, 12, 14 or 15), then a "failure to further limit the parent claim" would apply because claim 13 contains no new limitations than any of the limitations found in the last "paragraph" of each independent claim. Therefore, for the purposes of this office action, claim 13 will be grouped in with the rejection of claim 11 as they share the same limitations. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being obvious over McLintic (US 3,944,320) in view of Maruyama (US 4,838,629).

In regard to claims 11 and 13, McLintic discloses a reflector [10] comprising:

a heat radiating means [13] composed of a concave mirror-shaped substrate [figure 2];

a light-to-heat converting [15] component arranged on the light-reflecting surface side of the heat radiating means for absorbing light of a predetermined wavelength range to converting it to heat [figure 3; column 3, lines 48-61];

a specific wavelength range reflecting component [12] which reflects light of a specific wavelength range onto the light-to-heat converting component and permits light of the predetermined wavelength range to pass therethrough [column 3, lines 4-15]; and

a buffering component [16] disposed between the light-to-heat converting component and the specific wavelength range reflecting component for buffering so that the light-to- heat converting component and the specific wavelength range reflecting component will not come in direct contact with each other and for permitting light of the predetermined wavelength range that passes through the specific wavelength range reflecting component to pass therethrough [figure 3],

the reflector being characterized in that the light-to-heat converting component, the buffering component and the specific wavelength range reflecting component are laminated in the order mentioned over the reflective surface of the heat radiating means and joined in surface contact with one another [figure 3].

However, McLintic does not disclose projections and indentations are formed over the entire, joined interface where the light-to-heat converting component and the heat radiating means are joined so that light of a specific wavelength range that could not be absorbed but was reflected will be made incident once again on the light-to-heat converting component and so that light that could not be absorbed but was reflected will not concentrate on a particular point.

A person of ordinary skill in the art, upon reading the reference, would also have recognized the desirability of improving [feature 1] for [purpose for improvement]. Maruyama teaches that projections and indentations [formed by ribs 36] diffuse the light to produce desirable light-distribution characteristics.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to try the projections and indentations of Maruyama in an attempt to improve light distribution of the reflector of McLintic, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp. In turn, because a reflector cup having projections and indentations as claimed has the properties predicted by the prior art, one would have been motivated to make reflector having diffusive

qualities by utilizing projections and indentations. *KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007).*

Regarding claim 12, McLintic discloses a reflector comprising:

a discharge-type arc tube [2] emitting light [it is clear to one having ordinary skill in the art that discharge-type arc tube light sources are indeed high intensity discharge light sources as specified by McLintic];

a heat radiating means [13] composed of a concave mirror shaped substrate [figure 2] having a thermal conductivity of 10 W/m·K or greater [column 3, lines 48-61; column 3- lines 62-66—McLintic disclose the heat radiating means composed from a group of metals, all of which have a thermal conductivity greater than 10 W/m·K];

a light-to-heat converting component [15] arranged on the light-reflecting surface side of the heat radiating means for absorbing light of a predetermined wavelength range, radiated from the discharge-type arc tube and converting it to heat [figure 3; column 3, lines 48-61];

a specific wavelength range reflecting component [12] which reflects light of a specific wavelength range, radiated from the discharge-type arc tube onto the light-to-heat converting component and permits light of the predetermined wavelength range to pass therethrough [column 3, lines 4-15]; and

a buffering component [16] disposed between the light-to-heat converting component and the specific wavelength range reflecting component for buffering so that the light-to-heat converting component and the specific wavelength range reflecting component will not come in direct contact with each other and for permitting light of the predetermined wavelength range that passes through the specific wavelength range reflecting component to pass therethrough [figure 3],

the reflector being characterized in that the light-to-heat converting component, the buffering component and the specific wavelength range reflecting component are

laminated in the order mentioned over the reflective surface of the heat radiating means and joined in surface contact with one another [figure 3].

However, McLintic does not disclose the following characteristics:

- The buffering component consisting of an organic resin. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an organic resin to form the buffering component, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One would be motivated to do so because the organic resin is readily available and would still perform the functions required of the buffering component.
- Projections and indentations are formed over the entire, joined interface where the light-to-heat converting component and the heat radiating means are joined so that light of a specific wavelength range that could not be absorbed but was reflected will be made incident once again on the light-to-heat converting component and so that light that could not be absorbed but was reflected will not concentrate on a particular point. A person of ordinary skill in the art, upon reading the reference, would also have recognized the desirability of improving [feature 1] for [purpose for improvement]. Maruyama teaches that projections and indentations [formed by ribs 36] diffuse the light to produce desirable light-distribution characteristics. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to try the projections and indentations of Maruyama in an attempt to improve light distribution of the reflector of McLintic, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp. In turn, because a reflector cup having projections and indentations as claimed has the properties predicted by the prior art, one would have been motivated to make reflector having diffusive qualities by utilizing projections and indentations. *KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007).*

In regard to claim 14, McLintic discloses a reflector comprising:

a heat radiating means [13] composed of a concave mirror-shaped substrate [figure 2];

a light-to-heat converting [15] component arranged on the light-reflecting surface side of the heat radiating means for absorbing light of a predetermined wavelength range to converting it to heat [figure 3; column 3, lines 48-61];

a specific wavelength range reflecting component [12] which reflects light of a specific wavelength range, radiated from the discharge-type arc tube onto the light-to-heat converting component and permits light of the predetermined wavelength range to pass therethrough [column 3, lines 4-15]; and

a buffering component [16] disposed between the light-to-heat converting component and the specific wavelength range reflecting component for buffering so that the light-to- heat converting component and the specific wavelength range reflecting component will not come in direct contact with each other and for permitting light of the predetermined wavelength range that passes through the specific wavelength range reflecting component to pass therethrough [figure 3],

the reflector being characterized in that projections and indentations are formed over the entire, buffering component side surface of the light-to-heat converting component [figure 3].

However, McLintic does not disclose projections and indentations are formed over the entire, joined interface where the light-to-heat converting component and the heat radiating means are joined so that light of a specific wavelength range that could not be absorbed but was reflected will be made incident once again on the light-to-heat converting component and so that light that could not be absorbed but was reflected will not concentrate on a particular point. A person of ordinary skill in the art, upon reading the reference, would also have recognized the desirability of improving [feature 1] for [purpose for improvement]. Maruyama teaches that projections and indentations [formed by ribs 36] diffuse the light to produce desirable light-distribution characteristics.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to try the projections and indentations of Maruyama in an attempt to improve light distribution of the reflector of McLintic, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp. In turn, because a reflector cup having projections and indentations as claimed has the properties predicted by the prior art, one would have been motivated to make reflector having diffusive qualities by utilizing projections and indentations. *KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007).*

In regard to claim 15, McLintic discloses a reflector comprising:

a discharge-type arc tube [2] emitting light [it is clear to one having ordinary skill in the art that discharge-type arc tube light sources are indeed high intensity discharge light sources as specified by McLintic]

a heat radiating means [13] composed of a concave mirror shaped substrate [figure 2] having a thermal conductivity of 10 W/m·K or greater [column 3, lines 48-61; column 3- lines 62-66—McLintic disclose the heat radiating means composed from a group of metals, all of which have a thermal conductivity greater than 10 W/m·K];

a light-to-heat converting component [15] arranged on the light-reflecting surface side of the heat radiating means for absorbing light of a predetermined wavelength range, radiated from the discharge-type arc tube and converting it to heat [figure 3; column 3, lines 48-61];

a specific wavelength range reflecting component which reflects light of a specific wavelength range, radiated from the discharge-type arc tube onto the light-to- heat converting component and permits light of the predetermined wavelength range to pass therethrough; and

a buffering component [16] disposed between the light-to-heat converting component and the specific wavelength range reflecting component for buffering so that the light-to-heat converting component and the specific wavelength range reflecting component will not come in direct contact with each other and for permitting light of the

predetermined wavelength range that passes through the specific wavelength range reflecting component to pass therethrough [figure 3],

the reflector being characterized in that projections and indentations are formed over the entire, buffering component side surface of the light-to-heat converting component [figure 3].

However, McLintic does not disclose the following limitations:

- The buffering component consisting of an organic resin. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an organic resin to form the buffering component, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One would be motivated to do so because the organic resin is readily available and would still perform the functions required of the buffering component.
- Projections and indentations are formed over the entire, joined interface where the light-to-heat converting component and the heat radiating means are joined so that light of a specific wavelength range that could not be absorbed but was reflected will be made incident once again on the light-to-heat converting component and so that light that could not be absorbed but was reflected will not concentrate on a particular point. A person of ordinary skill in the art, upon reading the reference, would also have recognized the desirability of improving [feature 1] for [purpose for improvement]. Maruyama teaches that projections and indentations [formed by ribs 36] diffuse the light to produce desirable light-distribution characteristics. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to try the projections and indentations of Maruyama in an attempt to improve light distribution of the reflector of McLintic, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp. In turn, because a reflector cup having projections and indentations as claimed has the properties predicted by the prior art, one would have been motivated to make reflector having diffusive qualities by utilizing

projections and indentations. *KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007).*

Regarding claim 16, McLintic discloses the heat radiating means [13] is composed of an aluminum substrate and also provides the function of the light-to-heat converting component [column 3, lines 53-66].

In regard to claim 17, McLintic discloses the claimed invention as indicated above. However, McLintic does not disclose the forming of anodizing aluminum in an aqueous solution. The presence of process limitations on product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to the product. In re Stephens 145 USPQ 656 (CCPA 1965). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to forming the aluminium substrate by an anodizing process in an aqueous solution of chromic anhydride. One would be motivated to do so because anodizing aluminum is a common method of forming aluminum apart from those mentioned by McLintic.

Regarding claim 18, McLintic discloses the claimed invention. However, McLintic does not disclose the buffering component film-formed by calcining Si resin or polyimide resin at high temperatures. It would have been obvious to one of ordinary skill in the art at the time of the invention to use an resin (an a common method of forming resin) to form the buffering component, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. One would be motivated to do so because resins are readily available and would still perform the functions required of the buffering component

In regard to claim 19, McLintic discloses a light source device [figure 2] including a reflector [10] according to claim 11, in addition to a light source [2].

Regarding claim 20, McLintic discloses a projection display apparatus including a light source device according to Claim 19 [column 4, line 57-column 5, line 35].

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are cited as reflectors having at least a heat-radiating means, a light-to-heat converting component, and a specific wavelength range reflecting component:

- Rancourt et al. (US 4,229,066);
- Hoppert et al. (US 5,169,229);
- Gielen et al. (US 5,177,396);
- Spiro et al. (US 6,534,903); and
- Gillich et al. (US 6,709,119).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. LOVELL whose telephone number is (571)272-2719. The examiner can normally be reached on Monday through Friday 8 a.m. until 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Lovell
Examiner
19 June 2008

/Jong-Suk (James) Lee/
Supervisory Patent Examiner, Art Unit 2885